A.A.A.S. BULLETIN

VOL. 1 JULY, 1942 No. 5

Published monthly by the American Association for the Advancement of Science. Office of Publication, North Queen St. and McGovern Ave., Lancaster, Pa. Editorial and Business Office, Smithsonian Institution Building, Washington, D. C., to which office all communications should be addressed.

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Single copy, 10 cents; annual subscription, $1.00.

Entered as second-class matter at Lancaster, Pa., March 24, 1942, under the Act of August 24, 1912.

Science and Technology

A generation ago many scientists were in the habit of distinguishing rather sharply between science and its applications. To hold aloof from the usual activities of life appeared to them to be a virtue, and in extreme cases they boasted that their scientific work could never have any practical use. At the same time those whose interests were primarily in the applications of science often maintained that every scientific discovery had its ultimate origin in some human need.

Obviously no general statement can be made respecting the origin of scientific discoveries, for their sources have certainly been varied and, besides, human beings do not recognize the forces that move them. Nor can the relative importance of pure and applied science be evaluated, for it is impossible to foresee whether a particular scientific doctrine, such as the heliocentric theory, will transform the entire outlook of mankind, or whether such a practical discovery as the relation between electricity and magnetism will create a new physical and intellectual environment.

During the first world war the distinction between pure and applied science largely disappeared. The joint war work of research scientists and technologists greatly increased the respect of each group for the other, and with very beneficial results. Among their most important achievements has been the transformation of institutes of technology from high grade trade schools to comprehensive and efficient institutions devoted to human welfare. With scientific penetration into the essentials and with statesmanlike foresight, the leaders in this evolution have marshalled financial and human resources in the service of society with unparalleled success. A veil of secrecy must for the present, and perhaps for a long time in the future, hide from the public the enormous contributions of these institutions to the war effort of the United States, which in economy and efficiency are setting a pattern that governmental agencies can hardly hope to follow. In a similar spirit and with equal acumen The Rockefeller Foundation is making the whole world its garden.

On their part, technologists have learned that scientists in universities are not impractical dreamers but men whose deep interest in the essential characteristics of natural phenomena does not dull their appreciation of the advantages that applications may have. It is because of the high value now set on what has been known as "pure research" that the industries of the country have set up research laboratories by the hundreds and even by the thousands, for the operations of which they appropriate annually many tens of millions of dollars. It is because of their high regard for fundamental research that industrial leaders have endowed universities, established research institutes, provided fellowships and given generous prizes for scientific achievements. It is precisely because of their interest in fundamental research that 26 industrial laboratories have provided $24,700 to place on a permanent basis the AAAS-Gibson Island Research Conferences on Chemistry.

The point that science has become democratic is illustrated further by the fact that academic and industrial scientists have equal interests in societies and publications in their special fields. For example, the president of the National Academy of Sciences and ten of its members are officers or employees of industrial laboratories. The retiring president of the association, Dr. Irving Langmuir, is an associate director of one of the great industrial laboratories. Hundreds of members of the staffs of industrial laboratories are members of the association; in fact, more than 80 employees of the du Pont laboratories alone are members.

Will the present world war have equally advantageous effects on the advancement of

science? Or will an exhausted and disillusioned world ascribe its woes to science and turn from it to philosophy or some mystic religion for happiness? It is hazardous to make predictions, for human beings in distress reach strange conclusions and do strange things. However, it is certain that as yet there has been no decrease in scientific activity. On the contrary, science was never before so highly respected or so eagerly cultivated. Although the primary purpose of much of current scientific work is destruction, a considerable fraction of it will have more important applications after peace returns. It would be easy to dream dreams of an abundance of the things that are now scarce, of better substitutes for these things, of better houses, or more of everything that men want and that science and technology can produce.

There are, however, quite different aspects of the relations of science to society which are more interesting and more important. In the long run, the success of a religion, a philosophy or a social order depends upon its acceptance by the masses. This is true also of science. Its technological applications have long been universally accepted; now its methods and its spirit are becoming a part of the intellectual lives of millions. Two million soldiers and sailors in training centers and in stations in the tropics are living under sanitary controls that are far beyond anything that most of them ever knew existed. Other millions are learning the principles and practices of first aid in case of injuries and tens of millions are taking keen interest in problems of diet. Demands in the armed services, in sanitation and medicine, in industry and agriculture for young men and women with scientific training are far beyond the capacity of educational institutions to supply. To carry on almost any of the work of the world in the future some kind of serious scientific training will be necessary, with the result that the uses and the methods of science will always be in the minds of people, and often, also, the clear thinking and the intellectual honesty it requires.

In its fundamental scientific discoveries, science has been laying foundations for technology; in its requirements for almost universal scientific training, technology is assuring a glorious future for science.—F.R.M.

Conference on Chemistry Teachers

From August 11 to 14, 1942, the fourth conference of chemistry teachers will be held at Durham, N. H., upon invitation of the University of New Hampshire and under the auspices of the New England Association of Chemistry Teachers. Miscellaneous papers will be read at the morning and afternoon sessions, which begin at 9:00 A.M. and 2:00 P.M. Three afternoons, beginning at 3:00 o'clock, will be devoted to a symposium on Modern Knowledge of Atomic Structure and Its Application to the Teaching of Chemistry. Round table discussions on chemistry courses and teaching are scheduled for three afternoons at 4:30. Evening lectures on Wednesday, Thursday, and Friday will be delivered, respectively, by Ralph W. Gerard, the University of Chicago, on Science Education and the Contemporary World; Robley D. Evans, Massachusetts Institute of Technology, on Atom Smashing and the Structure of Atomic Nuclei; and Alexander Silverman, University of Pittsburgh, on Glass Today and Tomorrow. Motion-picture programs will precede each of the evening lectures. Information concerning the conference may be obtained by writing M. W. Bosworth, Chairman, Saxtons River, Vt.

The University of New Hampshire has offered its campus as well as its dormitory buildings to those attending the conference, which together with the ideal facilities and modern equipment afforded by the University, give promise of a successful conference.

Alcohol Explored

In April, 1939, the Association entered into an agreement with Doubleday, Doran and Company, of New York City, to publish a series of nontechnical books on science of the highest possible scientific and literary merit. To be certain that the books meet the requirements established by the Association and the publisher, the manuscripts must first be approved by a special committee consisting of three fellows of the Association. The books published under the agreement are known as the American Association for the Advancement of Science Series and are available to members of the Association at about 20% below the publisher's list price. All financial responsibility for the publication of the books in the series is assumed by the publisher. In return, the publisher retains title and all rights.

Three books have been published under the agreement, the third—*Alcohol Explored*—having just come from the press. The authors are Dr. Howard W. Haggard and Dr. E. M. Jellinek. Dr. Haggard is the Director of the Laboratory of Applied Physiology of Yale University and the author of *Devils, Drugs and Doctors.* Dr.

Jellinek, also of Yale University, is vice-chairman of the Scientific Committee of the Research Council on Problems of Alcohol and editor of the Council's Reference Work. Both authors are editors of the Quarterly Journal of Studies on Alcohol.

The aim of the authors in this book is to present the facts relating to alcohol—its history, its uses and abuses, why people drink, and all of the questions which concern every one of us, either directly or indirectly—as it affects the country as a whole. The approach to the subject is entirely scientific—not from the angle of the reformer. The price of this book to members is $2.25.

The first volume of the series was entitled *Multiple Human Births—Twins and Supertwins*, by Dr. H. H. Newman of the University of Chicago. The price of this book is $2.00 to members. *Strange Malady—The Story of Allergy* is the title of the second book, written by Dr. Warren T. Vaughan of Richmond, Va. This volume is sold to members at $2.50 per copy.

Orders together with checks or money orders for the proper amounts should be sent to the Office of the Permanent Secretary, Smithsonian Institution Building, Washington, D. C.—S.W.

Exhibitors' Luncheon Meeting

"Science in War and Post War Reconstruction" was the subject of an address given by Dr. Detlev W. Bronk, Johnson professor of biophysics and director of the Johnson Foundation for Medical Physics and the Institute of Neurology, University of Pennsylvania School of Medicine, at a luncheon given by the Association at the Commodore Hotel, New York City, June 2, for representatives of the firms who participate in the Association's annual exhibition. This luncheon marked the first official gathering in preparation for the New York meeting. Besides exhibitor representatives there were present the Permanent and General Secretaries of the Association, Dr. A. F. Blakeslee, past president, Dr. William J. Robbins, director of the New York Botanical Garden, Dr. Alexander Sandow of the Biology Department, New York University, Dr. Gerald Wendt, and the directors of the Association's exhibition and its press service.

At the close of Dr. Bronk's address and a lively discussion period, Miss Doris Leisen, Director of Exhibits, presented the floor plan of this year's exhibition to be held in the ballroom of the Commodore Hotel and invited suggestions and criticisms concerning details from exhibitor representatives. A report of this discussion will be sent to all exhibitors shortly. It was the concensus of opinion of those present that the New York meeting exhibition, due largely to its location in a population center of the country, has great possibilities of being outstanding in representation and attendance.—SIDNEY S. NEGUS, Director of Press Service.

"Enriched" Bread and Flour

A major part of the National Nutrition Program is educational. The program was inaugurated in May, 1941, by the National Research Council and the Office of Defense Health and Welfare Services with the aid of numerous other organizations, both public and private. A primary object of the program is to teach the use of protective foods as regular supplements to the great staples which furnish the larger part of our caloric intake.

The supplementary relationships among foodstuffs are by no means simple and it is idle to hope that the average housewife can be taught to plan meals by her own calculations of intake of the large number of essential dietary nutrients. The Office of Defense Health and Welfare Services has therefore wisely chosen to give simple commandments of nutrition rather than a reasoned but elaborate doctrine.

In the phraseology of Holy Writ the commandment might read: Drink thou *daily* the milk of thy herds and eat the flesh of thy flocks, garnished with the roots and green leaves of thy garden and the golden and red fruits of thy orchards and vines. Fill then thy belly with the bread of thy granaries. Do this and thou shalt live, thou and thy house.

The commandment is simple but universal obedience is not. Not all will hear and still fewer will heed. Many under the pressure of hectic modern life will "grab a sandwich and a cup of coffee" and hurry to their tasks, feeling secure in the fact that the body does not immediately collapse from want of its daily proper ration. The greater part of our population is urban and has neither herds, gardens, orchards nor granaries—only the corner grocery and the bakery down in the middle of the block. Furthermore, in spite of the benefactions of the New Deal there remain and will always remain many lean purses whose owners will turn from the expensive and perishable foods to the staples that stick to one's ribs. We shall try to change these conditions by every means at our disposal, but realistic common sense tells me we shall have only a partial success in our lifetime.

These are the facts which furnish the motive

for the other part of our National Nutrition Program, namely the correction of our staples so that no great masses will continue to be exposed to gross malnutrition for want of wisdom or cash. Of these corrections, that of bread and flour is incomparably the most important because of the universal and substantial consumption of these products. They furnish a fourth of the calories of the average person and roughly half of the calories of the poor and of common labor. If eaten in the natural form our grains would supply on the average as much vitamin B_1 as all the rest of our foodstuffs put together and fully half as much niacin (nicotinic acid). In spite of the fact that most of our bread is white, the grains still supply one-fourth of the nation's ration of vitamin B_1 and an appreciable fraction of our niacin. It is the want of these two vitamins which causes the two great nutritional plagues of the present-day world, beriberi and pellagra. There are other lacks but they do not equally undermine the vigor and earning power of great groups of people.

Well! If whole grains would confer such benefits, why not eat them to the exclusion of the white mill products? Thirty years of experience in the promotion of the use of whole grain or undermilled products by commercial interests and by government has failed to make measurable progress on any continent among people who have become accustomed to white. Although legislation against white rice was proposed in the Philippines more than thirty years ago, it has never been adopted. Throughout the Orient there has been no mass prevention of beriberi though we have so long known how to do it. Government tax support of undermilled flour, began in Switzerland in 1937, has failed completely of permanent effect. England has tried in vain during the present war to secure a significant consumption of its "national wheatmeal loaf." Enterprising American bakers have also failed in numerous efforts to exploit on a large scale the nutritional merits of whole wheat. We remain where we were with about a 10 per cent consumption of brown breads, most of them containing much less than half whole wheat flour. The extent of dilution is indicated by the fact that 98 per cent of all the bakery flour is white.

By contrast with these records of failures we have, by adding synthetic vitamin B_1, niacin, and iron, within the space of one year achieved the principal needed nutritional corrections of half of our nation's bread and flour supply and the practice is steadily spreading. These additions do not alter the appearance or flavor of the products and so no consumer resistance is encountered. The annual per capita cost of thus enriching all our bread and flour will be less than 20 cents compared with several dollars for any other major nutritional reform such as, for example, an extra glass of milk a day per person. Enriched bread and flour therefore deserve the support of every intelligent and public-spirited citizen. With such support, expressed over the grocery store counter, we shall achieve nearly 100 per cent success before snow flies again. It is the job of patriotic women everywhere to organize this support.—ROBERT R. WILLIAMS. (Dr. Williams and his brother, Dr. Roger J. Williams, received the Charles Frederick Chandler Medal of Columbia University, on February 26, 1942, for their researches on vitamins.)

Foreign Members of the Association

It appears to have been the intention of the founders of the Association to use the word "American" in the continental sense, rather than in the narrow and improper sense of the United States alone. Throughout the 94 years of its existence, the Association has welcomed as members all scientists who approve of its purposes regardless of their nationality or place of residence. Nor has eligibility for holding office in the Association depended upon political boundaries.

Canada is nearer the large centers of population and scientific interest in the United States than any other foreign country. Moreover, the two countries have a common language and migrations in both directions across their common boundary have been extensive. For these reasons Canadian scientists have been influential in the affairs of the Association. Five meetings of the Association have been held in Canadian cities and one of its distinguished scientists, Dr. J. Playfair McMurrich, was president of the Association in 1922. Many Canadians have held other offices in the Association and three of its scientific societies have been admitted as affiliated or associated societies.

Relations of the Association with scientists in the Latin American countries as yet have been less numerous, primarily because of distance and the expense of travel and partly because of differences in language. Happily international travel in the Americas is becoming easier and the difficulties due to language are rapidly decreasing. The Mexican states of Sonora and Chihuahua have for 20 years been included in the territory of the Southwestern Division, the Associação

Quimica do Brazil has been admitted as an affiliated society, and the Association has contributed copies of eight of its symposia to the library of each of the principal universities in the Latin American republics. It is hoped that, when books again can be sent to South America without serious danger of loss, additional contributions can be made to Latin American libraries.

There are 882 members of the Association in the Americas and adjacent islands outside of the 48 states and the District of Columbia. Of these members, 12 reside in Alaska, 13 in the Canal Zone, 96 in the Hawaiian Islands, 75 in Puerto Rico and two in the Virgin Islands, all a part of, or dependencies of, the United States.

The distribution of other members of the Association in the Americas, outside of the United States, is as follows:

Argentina	34	Falkland Islands	1
Bolivia	3	Guatemala	4
Brazil	23	Haiti	4
British Guiana	1	Jamaica	4
British Honduras	1	Mexico	43
Canada	436	Nicaragua	2
Chile	4	Peru	24
Colombia	17	Republic Dominicana	1
Costa Rica	8	Trinidad, B.W.I.	5
Cuba	27	Uruguay	2
Ecuador	6	Venezuela	25
El Salvador	9		
Sub-total	569	Sub-total	115
		Total	684

In addition, 62 members of the Association live in the Philippine Islands, making a total of 944 members of the Association outside of continental United States who live either in the Americas, islands adjacent to the Americas, or the Philippine Islands.

Other members living outside the United States are distributed among continental regions as follows: Asia, 75, of which 25 are in China; Africa, 22; Europe, 26; Oceania, 37. Hence there are altogether 1129 members of the Association living outside of the United States. Within the United States there are now (June 19) 22,654 members, making a total membership of 23,783.

Perhaps of even greater interest than the large membership of the Association is the fact that it is distributed among 75 countries and major dependencies of independent countries. Members of the Association are found not only in the more populous and richer countries, such as China, India, Russia, Germany and England, but also in Korea, Thailand, Egypt, Luxembourg, Lithuania, Jugoslavia, Bulgaria, Czechoslovakia, Irak, Iran, Lebanon, Palestine, and Algeria. When the war ends the members of the Association in these various countries will be among the first to renew their cordial relations with one another and with other scientists throughout the world, for science is wholly independent of race, nationality, and creed.—F.R.M.

Relapsing Fever

The history of relapsing fever is one of the most intriguing stories in medical science. During the middle of the last century, when Pasteur was fighting to overthrow the theory of spontaneous generation and Lister was demonstrating the control of post-operative infections by keeping the air of the operating rooms filled with a spray of carbolic acid, there were a number of individuals who were attempting to interpret the achievements of Pasteur and Lister in terms of a specific microorganism as the cause of each specific disease.

The winter of 1867–68 found scores of individuals with relapsing fever admitted to the hospitals in Berlin. This disease stood apart, clearly differentiated from the maze of febrile conditions which have harassed man since the beginning of time under the designation "fevers," because of its definite clinical course. The patients became suddenly ill with a severe chill and a rapid rise in temperature to 104–106° F. within twenty-four hours, accompanied by severe headaches, nausea and vomiting, muscular pains in the back, and unusual jaundice. The febrile state persisted for about 72 hours, then terminated with a sudden drop in temperature and profuse sweating, to be followed by an afebrile interval of approximately eight days when the patients felt quite normal. Then occurred a series of successive relapses which as a rule increased in severity. It was this sequence of events during an epidemic in Edinburg in 1843–48 which had given the disease its name. After four to five relapses the subsequent paroxysms became shorter and lighter, the total duration of the disease extending usually over a period of three months.

Dr. Otto Obermeier, a physician not yet 25 years of age, became extremely interested in these patients. He was particularly curious to know the cause of the various clinical manifestations and he suspected a microbial agent. When specimens of blood taken during a pyrexial wave were examined with the microscope, tiny, actively motile, snake-like forms were observed twisting and turning between the red blood cells. They were delicately spiralled organisms. With the

disappearance of the fever the tiny organisms disappeared from the peripheral blood, to reappear with the return of the fever. These germs were not present in the blood of normal individuals or in the blood of patients with febrile conditions other than relapsing fever. They were specifically associated with this disease, and while Obermeier believed they were the cause, some of his colleagues contended they were the result of the disease. Obermeier's theory was conclusively proved within a short time, but his detection of the first spirochete to be definitely associated with a disease of man was unfortunately obscured by the triumphant bacteriological discoveries of Pasteur and Koch, Nevertheless his observations were promptly confirmed, and it became a routine procedure in scientific medicine to find this organism, now designated *Spirochaeta obermeieri,* in the blood stream before making a diagnosis of relapsing fever. To just what extent this work contributed to the discovery of *Spirochaeta pallida,* the cause of syphilis, by Schaudinn and Hoffmann in 1905, is difficult to evaluate; but the establishment of a spirochetal disease by Obermeier prepared the scientific world for the acceptance of the spirochetal etiology of syphilis.

With the acceptance of the etiology of relapsing fever and the development of the objective method of diagnosis, the distribution of the disease was seemingly world-wide. However, in Europe and Asia when the disease appeared it was usually in epidemic form, while in Africa and in Central and South America it was sporadic, thus raising many questions as to the method of transmission, possible reservoirs, and varieties or strains of the spirochete.

In the early years of the present century two vectors were discovered, body-lice and members of the Ornithodoros genus of ticks. The louse is primarily responsible for the spread in Europe and Asia, and the tick in Africa and Central and South America. Not only are infected adults capable of transmitting the spirochetes, but their ova are contaminated and on hatching, the young are liksewise able to transmit the germs. The same is true of ticks, with the added interest that infected ticks are known to survive for years in caves and abandoned buildings and retain their infectiousness. Innumerable rodents and other animals have been found to serve as reservoirs in nature for spirochetes of this species.

Relapsing fever attracted no more than passing interest in the United States until some ten years ago. Only the tick-borne type is indigenous here. At the present time the disease has been reported in 13 of the Western States and new foci are being recognized each year. The annual incidence is probably less than 500 cases, with many unreported. Modern means of transportation introduce many problems in the control of relapsing fever; as an example, only a year ago a case of this disease was diagnosed in a midwestern city, the patient having contracted the infection while travelling in Central America and returned home by airplane before the clinical manifestations appeared. Again, the transportation of infected ticks by motor vehicles has been responsible for the appearance of the disease in eastern cities. Fortunately this malady rarely produces death among its victims in the United States; however, the incapacitation associated with the infection is real. The control of the disease now becomes a very important public health problem, and is dependent primarily on the elimination of animal reservoirs. By this procedure the infection would be gradually eliminated in the tick vectors.—MALCOLM H. SOULE.

(A symposium on relapsing fever, organized by the Section on Medical Sciences, was presented at the Dallas Meeting last December. The papers presented at the symposium are being published in a volume as one of the symposia publications and in the same format and size of previous publications in this series. Announcement will be made in the next issue of the. A.A.A.S. Bulletin when copies may be obtained. The prepublication price will be $2.00 to members and $2.50 to others; after date of publication (to be announced later) the price will be $2.50 to members and $3.00 to others.—S.W.)

The Flow of Scientific Thought

Scientific journals are the circulatory system for the ideas of science. It is largely through them that science develops, for scientific growth is the result of cross-fertilization between laboratories and groups in different countries. One of the evil consequences of war is that it stops the flow of scientific ideas from one nation to another. And to the extent that this process is blocked the development of science is definitely retarded.—RAYMOND B. FOSDICK, in A Review for 1941 of the Rockefeller Foundation.

Emeritus Members of the Association

Emeritus Life Memberships. In 1911, Jane M. Smith, of Pittsburgh, Pa., bequeathed $5000 to the Association with the stipulation that the income from the fund should be used for estab-

lishing Emeritus Life Memberships. As income received from the fund amounts to $100 or a multiple thereof, it is used to pay life membership dues for one or more members of longest continuous standing.

Upon the death of an emeritus life member, the $100 set aside for his life membership dues reverts to the credit of income from the fund and is available for the payment of life membership dues of another member elected to life membership by the Council. It follows that as time passes the number of emeritus life memberships will increase, the rate of increase depending on the rate of return upon the invested capital.

Since the establishment of the Jane M. Smith fund, in 1911, 133 members of the Association have been elected to emeritus life membership under the provisions of the bequest. Among them have been such eminent scientists as T. C. Chamberlin, who was president of the Association in 1908, and A. A. Michelson, who was president of the Association in 1910. Dr. Chamberlin was for a number of years president of the University of Wisconsin following which he was head of the Department of Geology at The University of Chicago until his retirement. Dr. Michelson was head of the Department of Physics at The University of Chicago from its founding until his retirement. Both of these distinguished scientists were members of the National Academy of Sciences, and Dr. Michelson had the honor of being the first American to receive a Nobel prize.

Of the 133 members of the Association who have been elected to emeritus life membership, sixty-three are still living, the oldest of whom is Dr. Robert H. Richards. He has the honor of having the longest continuous membership in the Association, having been elected in 1873.

Emeritus Annual Members. In 1932, Luella A. Owen bequeathed $500 to the Association without stipulating the purpose for which the income from the fund should be used. On December 29, 1932, the Council voted "that the gift of the Owen estate be used as a nucleus of a fund the income from which shall be used for emeritus annual members." It has been the custom of the Council to elect emeritus annual members from among members of long continuous standing. There are at present eight emeritus annual members.

When scientists retire from active work they face a serious problem of readjustment to changed conditions. Unfortunately reduced incomes often make it difficult or impossible for them to indulge in many activities they would enjoy. Among the pleasures they sometimes must forego is that of continuing their memberships in scientific societies. For this reason funds for the establishment of emeritus memberships provide satisfaction and happiness at very low cost. For example, a permanent fund of $25,000 would probably provide emeritus life memberships for all retiring scientists who had been members of the Association for twenty-five years.—F.R.M.

The Thousand Dollar Prize

A generous and far-sighted donor has made it possible for the Association to award an annual prize of one thousand dollars for a notable contribution to science. The inauguration of this prize occurred at the Cincinnati meeting held December 27, 1923, to January 2, 1924. From the beginning the prize has not been competitive in the usual sense, and no formal entry of papers has been made by contestants.

Prior to each annual meeting of the Association a Committee on Prize has been appointed whose duty has been to receive and review recommendations for the prize made by the Sections of the Association and by the secretaries in charge of the various scientific programs, including those of affiliated societies meeting with the Association. All papers appearing in the general program, whether by members or nonmembers of the Association, have been automatically eligible for the prize, with the exception of invited papers and presidential and vice presidential addresses. The Committee on Prize has usually given special attention to the contributions from younger authors. It has not assumed that there is one best paper presented at the entire meeting, but rather it has attempted to select a notable paper.

In awarding the first nineteen annual prizes the Association has honored 26 scientists. There has been evident a tendency to alternate the award between the two broad fields of biological and physical sciences; in fact, the second prize, awarded at the Washington meeting (December–January, 1924–25), was divided between representatives of these two fields. The papers selected as outstanding and worthy of the award have appeared on the programs of different sections of the Association and of societies affiliated with the respective sections as follows: Section on Mathematics, 2; Section on Physics, 5; Section on Chemistry, 1; Section on Astronomy, 1; Section on Zoological Sciences, 3; Section on

Botanical Sciences, 4; Section on Psychology, 1; and Section on Medical Sciences, 3. This distribution has been due more to scientific advances presented in the various fields than to any plan or principle adopted by the changing committees that have served.

The American Association Annual Thousand Dollar Prize may be characterized as a liberal reward, liberally administered. It has helped to stimulate fundamental research in a wide range of scientific fields; it has given substantial aid to the further accomplishments of its recipients; and it has served to open a channel of wide publicity for new and important scientific findings. On reviewing the results of the prizes as indicated by the reprints and comments from prizemen, the donor of the prize may well take satisfaction in having contributed so substantially to the realization of objectives long held by the Association.

(The foregoing description of the prize and the method of its award is largely taken from the foreword of the volume containing the letters and reprints of papers of the winners of the first 12 prizes, collected by Dr. Walter R. Miles, Yale University, and presented to the donor. Dr. Miles served on the Committee on Prize on three occasions, once as Chairman.)—S.W.

Human Malaria

Copies of Human Malaria, reproduced in the original format by a photographic process and having the same quality of cloth binding, are now available for distribution. As in the first printing, the price to members of the Association for cash orders is $4.00, postage paid, and to those who are not members of the Association, $5. Orders should be accompanied by checks or money orders and mailed to the Office of the Permanent Secretary.—S.W.

Official Seed Analysis Meeting

The 1942 annual meeting of the Association of Official Seed Analysts of North America, an associated society, will be held at the University of Kentucky on July 28 to 31, 1942. Comfortable quarters in one of the dormitory buildings and cafeteria service on the campus are to be provided. The officers for the meeting are F. A. McLaughlin, Amherst, Mass., *President,* and Elva L. Morris, Kansas State College, *Secretary.* C. N. McIntyre, Director of the Ohio Seed Laboratory, is Chairman of the Program Committee.

Officers of the Association

President, Arthur H. Compton; *Permanent Secretary,* Forest R. Moulton; *General Secretary,* Otis W. Caldwell; *Treasurer,* C. Carroll Morgan; *Assistant Secretary,* Sam Woodley.

Executive Committee: Burton E. Livingston, *Chairman;* Roger Adams, Joseph W. Barker, Otis W. Caldwell, Walter B. Cannon, J. McKeen Cattell, Roy E. Clausen, Arthur H. Compton, Esmond R. Long, F. R. Moulton, and W. E. Wrather.

Membership in the Association

According to the Constitution, the objects of the Association are to promote intercourse among those who are cultivating science in different parts of America, to cooperate with other scientific societies and institutions, to give a stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness. Members may reside in any country. A person desiring to become a member of the Association should fill in a membership application card that may be obtained from the Office of the Permanent Secretary and return it with his payment of $5.00 for one year's dues. Every member in good standing receives with his membership a subscription for either *Science* or *The Scientific Monthly.* Dues are for the fiscal year that begins October 1; the subscription begins the following calendar year. A member desiring to receive both journals concurrently may do so by paying $3.00 in addition to the regular dues. Members in good standing receive also, without extra charge, subscriptions for the A.A.A.S. BULLETIN, and they may purchase symposia publications at prepublication and post-publication reduced prices.

A person who pays $100 may be elected a life member; sustaining members pay $1,000. Both classes are exempt from the payment of further dues but are entitled to all the privileges of membership.

An incorporated scientific society or institution or a public or incorporated library may become a member by paying the entrance fee of $5.00 in addition to the dues. Such institution members are entitled to the same privileges as individual members.

Members are encouraged to nominate for membership persons who desire to cooperate in carrying out the objects of the Association. Names may be sent to the Office of the Permanent Secretary at any time. In the letter of invitation to become a member of the Association the name of the person making the nomination is ordinarily mentioned.

Changes of Address

New addresses for the Association's records and for mailing the journals *Science* and *The Scientific Monthly,* as well as the A.A.A.S. BULLETIN, should be in the Office of the Permanent Secretary, Washington, D. C., at least two weeks in advance of the date when the change is to become effective.